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Part X

Environmental Protection Agency

Standards of Performance for New Stationary Sources; Automobile and Light-Duty Truck Surface Coating Operations

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 60

[AD-FRL 1627-8]

Standards of Performance for New Stationary Sources; Automobile and Light-Duty Truck Surface Coating Operations

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: This rule establishes standards of performance to limit emissions of volatile organic compounds (VOC) from new, modified, and reconstructed automobile and light-duty truck surface coating operations within assembly plants. The standards were proposed and published in the **Federal Register** on October 5, 1979.

The standards implement the Clean Air Act and are based on the Administrator's determination that automobile and light-duty truck surface coating operations within assembly plants contribute significantly to air pollution which may reasonably be anticipated to endanger public health or welfare. The intent is to require new, modified, and reconstructed automobile and light-duty truck surface coating operations to use the best demonstrated system of continuous emission reduction, considering costs, nonair quality health and environmental and energy impacts.

EFFECTIVE DATE: December 24, 1980.

Under Section 307(b)(1) of the Clean Air Act, judicial review of this new source performance standard is available *only* by the filing of a petition for review in the United States Court of Appeals for the District of Columbia Circuit within 60 days of today's publication of this rule. Under Section 307(b)(2) of the Clean Air Act, the requirements that are the subject of today's notice may not be challenged later in civil or criminal proceedings brought by EPA to enforce these requirements.

ADDRESSES: *Background Information Document.* The Background Information Document (BID) for the final standards may be obtained from the U.S. EPA Library (MD-35), Research Triangle Park, North Carolina 27711, telephone number (919) 541-2777. Please refer to "Automobile and Light-Duty Truck Surface Coating Operations—Background Information for Promulgated Standards" (EPA-450/3-79-030b).

Docket. The Docket, number A-79-05, containing supporting information used in developing the promulgated standards is available for public inspection and copying between 8:00 a.m. and 4:00 p.m., Monday through Friday at the EPA's Central Docket Section, West Tower, Lobby Gallery 1, Waterside Mall, 401 M Street SW., Washington, D.C. 20460. A reasonable fee may be charged for copying.

FOR FURTHER INFORMATION CONTACT: Mr. Gene Smith, Chief, Standards Preparation Section (MD-13), U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, telephone number (919) 541-5421.

SUPPLEMENTARY INFORMATION:

The Standards

The promulgated standards apply to new, modified, or reconstructed automobile and light-duty truck surface coating operations for which construction is commenced after October 5, 1979. The standards apply to each prime coat operation, each guide coat operation, and each topcoat operation within an assembly plant where components of an automobile or light-duty truck body are coated. Operations used to coat plastic body parts and all-plastic bodies on separate coating lines are not covered. However, operations which coat all-metal bodies or metal bodies with plastic body parts attached before coating are covered by the standards. Emissions of VOC from affected facilities are limited as follows: 0.16 kilograms of VOC per liter of applied coating solids from prime coat operations, 1.40 kilograms of VOC per liter of applied coating solids from guide coat operations, 1.47 kilograms of VOC per liter of applied coating solids from topcoat operations.

Although the emission limits are based on the use of waterborne coating materials in each coating operation, they can also be met with solvent-borne coating materials through the use of other control techniques such as incineration.

Annual model changeovers or switches to larger cars and changes in the application of coatings to increase film thickness are not covered as modifications under § 60.14.

The owner or operator is required to conduct a performance test each calendar month and report the results to EPA within ten days of the end of any month in which the affected facility is not in compliance with the standards. The calculation of the volume weighted average mass of VOC per volume of applied coating solids during each calendar month constitutes a performance test. While Method 24 is the reference method for use in this performance test to determine data used in the calculation of the volatile content of coatings, provisions have been made to allow the use of coatings manufacturers' formulation data to determine the volume fraction of solids.

In addition to the non-compliance report, the owner or operator of an affected facility who utilizes incineration to comply with the standards must submit reports quarterly on incinerator performance.

Environmental, Energy, and Economic Impacts

Environmental, energy, and economic impacts of standards of performance are normally expressed as incremental differences between the impacts from a facility complying with the standards and those for one complying with the emission standards in a typical State Implementation Plan (SIP). In the case of automobile and light-duty truck surface coating operations, the incremental differences will depend on the control levels that will be required by revised SIPs. Revisions to most SIPs are currently in progress.

Most existing automobile and light-duty truck surface coating operations are located in areas which are considered nonattainment areas for purposes of achieving the National Ambient Air Quality Standard (NAAQS) for ozone. New facilities are expected to locate in similar areas. States are in the process of revising their SIPs for these areas and are expected to include revised emission limitations for automobile and light-duty truck surface coating operations in their new SIPs. In revising their SIPs, the States are relying on the control techniques guideline document, "Control of Volatile Organic Emissions from Existing Stationary Sources—Volume II: Surface Coating of Cans, Coil, Paper, Fabrics, Automobiles and Light-Duty Trucks" (EPA-450/2-77-008 [CTG]).

Since control technique guidelines are not binding, States may establish emission limits which differ from the guidelines. To the extent States adopt the emission limits recommended in the control techniques guideline document as the basis for their revised SIPs, the promulgated standards will have little environmental, energy, or economic impacts. The actual incremental impacts of the promulgated standards will be determined by the final emission limitations adopted by the States in their revised SIPs. For the purpose of this rulemaking, however, the environmental, energy, and economic impacts of the standards have been

estimated based on emission limits contained in existing SIPs at the end of 1978 when development of background information for the standards began.

In addition to achieving further reductions in emissions beyond those required by a typical SIP, standards of performance have other benefits. They establish a degree of national uniformity to avoid situations in which some States may attract industries by relaxing air pollution standards relative to other States. Further, standards of performance improve the efficiency of a case-by-case determination of best available control technology (BACT) for operations located in attainment areas and lowest achievable emission rates (LAER) for operations located in nonattainment areas by providing a reference document for use in these determinations. The reason is that the process for developing standards of performance involves a comprehensive analysis of alternative emission control technologies and an evaluation and verification of emission test methods. Detailed cost and economic analyses of various regulatory alternatives are presented in the supporting documents for the standards of performance.

The regulatory alternatives and the environmental, energy, and economic impacts of the standards of performance were originally presented in "Automobile and Light-Duty Truck Surface Coating Operations—Background Information for Proposed Standards" (EPA–450/3–79–030) and remain unchanged since proposal.

The standards of performance will reduce emissions of VOC from new, modified, or reconstructed automobile and light-duty truck surface coating operations by about 80 percent, compared to operations controlled to levels contained in SIPs existing at the end of 1978. National emissions of VOC will be reduced by about 4,800 megagrams per year by 1983 based on the projection that four new assembly plants are planned by that year.

Water pollution impacts of the standards will be relatively small compared to the volume and quality of the wastewater discharged from plants meeting 1978 SIP levels. The standards are based on the use of waterborne coating materials. These materials will lead to a slight increase in the chemical oxygen demand (COD) of the wastewater discharged from the surface coating operations within assembly plants. This increase in COD, however, is not great enough to require additional wastewater treatment capacity beyond that required in existing assembly plants using solvent-borne surface coating materials.

The solid waste impact of the promulgated standards will be negligible compared to the amount of solid waste generated by existing assembly plants. The solid waste generated by waterborne coatings, however, is very sticky and equipment cleanup is more time-consuming than for solvent-borne coatings. Solid wastes from waterborne coatings will not present any special disposal problems since they can be disposed of by conventional landfill procedures.

National energy consumption will be increased by the use of waterborne coatings to comply with the standards. The equivalent of an additional 18,000 barrels of fuel oil will be consumed per year at a typical assembly plant. This is an increase of about 25 percent in the energy consumption of a typical automobile surface coating operation. National energy consumption will be increased by the equivalent of about 72,000 barrels of fuel oil per year in 1983. This increase is based on the projection that four new assembly plants will be built by 1983. The impacts presented here are based on the use of waterborne coatings which will require extensive air conditioning in the affected facilities to meet temperature and humidity requirements. High solids coatings, while promising, are not yet adequately demonstrated to be used as the basis of the standards. However, to the extent new facilities comply with the standards through the use of higher solids content coatings, improved transfer efficiencies, and the use of incineration, with heat recovery, the energy impacts will be less than presented here.

The standards will increase the capital and annualized costs of new automobile and light-duty truck surface coating operations within assembly plants. Capital costs for the four new assembly plants planned by 1983 will be increased by approximately $19 million as a result of the standards. These incremental costs represent about 0.2 percent of the $10 billion planned for all capital expenditures. The corresponding annualized costs will be increased by approximately $9 million in 1983. The price of an automobile or light-duty truck will be increased by less than 0.1 percent when spread over the manufacturer's entire production. The Administrator considers this increase a reasonable control cost.

Public Participation

Prior to proposal of the standards, interested parties were advised by public notice in the **Federal Register** of meetings of the National Air Pollution Control Techniques Advisory Committee to discuss the standards recommended for proposal. These meetings occurred on September 27 and 28, 1977. The meetings were open to the public and each attendee was given ample opportunity to comment on the standards recommended for proposal. The standards were proposed in the **Federal Register** on October 5, 1979. Public comments were solicited at that time and copies of the Background Information Document (BID) were distributed to interested parties. The public comment period extended from October 5, 1979, to December 14, 1979, with a public hearing on November 9, 1979.

In addition to five presentations at the public hearing, seventeen comment letters were received on the proposed standards of performance and on the two proposed reference methods, Methods 24 and 25, which were promulgated on October 3, 1980 (45 FR 65956). These comments have been carefully considered and, where determined to be appropriate, changes have been made.

Significant Comments and Changes to the Proposed Standards

Comments on the proposed standards were received from automobile and light-duty truck manufacturers, coatings manufacturers, trade and professional associations, State air pollution control agencies, and Federal agencies. While a number of changes were made in the standards since proposal, the affected facilities, control techniques on which the standards are based, and the impacts remain as presented in the BID for the proposed standards. Detailed discussions of these comments can be found in the BID for the promulgated standards. The major comments have been combined into the following areas: General, Emission Control Technology, Economic Impacts, Legal Considerations, and Reference Methods and Monitoring.

General

The proposed standards exempted certain specific changes which may occur in an existing facility from being considered a modification. One commenter requested that "Engineering Design Changes" be added to the list of exemptions to provide for those minor changes made during the model year to improve quality or performance of the finished product.

No changes were made in the standards as a result of this comment. While requested, data were not received defining the term "Engineering Design Changes." EPA, therefore, re-examined the available data. Under § 60.397, changes in the application of coatings to

increase coating film thickness are already exempted. In addition, minor operational changes which could include design changes are allowed as long as emissions are not increased. Therefore, EPA has concluded that sufficient relief is already provided in the standards and "engineering design changes" will not specifically be exempted.

Similarly, changes made to comply with SIP requirements were requested by one commenter to be added to the list of exemptions.

Changes to an existing facility made to comply with a SIP should reduce emissions rather than increase them. Therefore, it also would not be considered a modification. If a SIP-required change is significant enough to be considered as a reconstruction in accordance with provisions of § 60.15, the standards would apply only if it is determined to be technically and economically feasible.

One commenter stated that the transfer efficiency for waterborne air atomized spray was measured to be 36 percent instead of 40 percent at a new plant and that this value should be used as the basis for the standards.

At the time the standards were proposed, the volume of coating material required for line purging during color changes in a topcoat operation was not considered to have a significant impact on transfer efficiency. Recent tests conducted by the commenter and submitted in support of his position have indicated that line purging does have an impact. However, the same tests also indicated the technology is available to control this source of VOC emission by collecting the purge material or by incorporating design and operational changes to the spray system, thereby increasing transfer efficiency. After evaluating and discussing these data with the commenter, EPA agrees that changes to the proposed standards should be made. The baseline transfer efficiency for air atomized spray systems for waterborne coatings without purge after each vehicle on which the emission limits for guide coat operations were established has been changed from 40 percent to 39 percent. The corresponding baseline transfer efficiency for air atomized spray systems for waterborne coatings with partial purge and partial purge capture on which the emission limits for topcoat operations were established has been changed from 40 to 37 percent. As a result, the emission limits have been changed to 1.40 kilograms of VOC per liter of applied coating solids from guide coat operations, and 1.47 kilograms of VOC per liter of applied coating solids from topcoat operations.

In addition to the changes in the emission limitations, changes were made to the table of transfer efficiencies in § 60.393. Separate transfer efficiencies have been established for waterborne and solvent-borne air atomized spray systems since data indicate that higher transfer efficiencies can be realized with solvent-borne coatings. Also, because of the significance of line purging, separate tables of transfer efficiencies are now established for systems which collect 100 percent of the purge material and for systems which purge after each vehicle and do not collect any of the purge material. Provisions have also been made to allow the use of appropriate transfer efficiencies for systems which employ partial purge capture.

A number of commenters requested that the standards allow an exemption for special paints and colors which may be used in relatively small volumes because an arithmetic average of all coatings as required in the proposed standards could result in values greatly different than a volume weighted average.

The proposed standards required that an arithmetic average VOC content of all topcoat materials be used in determining emissions. This form of averaging was originally believed to provide a simple and reasonably accurate approximation of the volume weighted average VOC content of the coating materials actually used. However, for many of the new paint systems, a small percentage of the colors accounts for a large percentage of the paint used. Therefore, the arithmetic average can be significantly different from the weighted average. The promulgated standards require that compliance be demonstrated by a performance test which involves the calculation of the volume weighted average mass of VOC per volume of applied coating solids for each calendar month. While this does not exempt special paints and colors, it does allow their use in small volumes with an equitable impact on the overall average, and therefore the concerns of the commenters have been addressed.

Comments were received which requested that the coating of plastic car bodies and plastic components used on metal car bodies be excluded from the standards. Data provided by the commenter indicated significant problems associated with the use of surface coatings designed for sheet metal on plastic bodies or plastic body components. These include the increased incidence of ruptures and delaminations in the plastic substrate with the increased temperatures required to cure waterborne coatings. Similarly, the increased temperatures associated with waterborne coatings may cause defects in the materials used to join plastic body components.

The objections raised by the commenter were judged reasonable. Since current industry practice is to coat temperature sensitive plastic bodies and body components on separate lines, the standards have been changed to exclude those operations. However, plastic body components that are attached to the metal body before it is coated do not cause the coating operation of that body to be excluded.

Emission Control Technology

Two commenters objected to the weighted average method of determining the VOC content of prime coat material because of problems they anticipate with "flow control" additives. Flow control additives are added to an electrodeposition (EDP) tank to maintain or improve the application process and are added on a periodic basis. The commenters claim that flow control additives should not be included when determining the mass of VOC per volume of applied coating solids because flow control additives are not added on a continuous basis. The commenters contended that determinations of VOC when flow control additives are added will differ greatly from periods when flow control additives are not added.

The prime coat emission limit is based on a volume of solids weighted average VOC content of all makeup material including flow control additives added to an EDP tank during one calendar month. Flow control additives are high in VOC content but are added only periodically as stated by the commenter. If a short time period (such as daily) were used to calculate VOC emissions, the effect of flow control additions could be significant, causing wide daily fluctuations. A longer averaging period dampens these fluctuations. Information supplied to EPA during the development of these standards indicates that makeup material including flow control additives is available to meet an emission limit of 0.16 kilograms of VOC per liter of applied coating solids when averaged over a calendar month. Therefore, a monthly averaging period and the proposed value, including flow control additives, are appropriate.

Several commenters objected to the prime coat emission limit, which is equivalent to 1.2 pounds of VOC per gallon of coating minus water, claiming that such prime coat material is not available.

As indicated above, data from one automobile manufacturer indicates that prime coat material including flow control additives is available and operating experience demonstrates that the emission limit established for prime coat operations is achievable. Therefore, the emission limit will not be changed.

Economic Impacts

Two commenters recommended that separate standards be established for modified or reconstructed plants due to the differences in economic impacts.

If a physical or operational change were made to an existing facility at an automobile or light-duty truck plant which would potentially increase VOC emissions, the owner or operator could implement changes necessary to hold VOC emissions at or below the previous level so as not to be subject to the promulgated standards. This course of action would be less costly to the plant than implementing control strategies to meet the promulgated new source performance standards. This reduction in emissions could be accomplished by switching to a lower VOC content coating or by incineration of a portion of the VOC emission stream. Both of these options are available to all plants and are reasonable.

Although it is unlikely to happen, if an existing facility is modified and is required to meet the limits of the NSPS, the cost of implementing control strategies to meet the standards would be more costly but would still be affordable. Some existing plants may not be able to use the full range of control options because of physical constraints. For example, an existing enamel plant may not have enough room in its existing spray booths to use waterborne coatings. The enamel booths are shorter than the ones required for waterborne coatings. Nevertheless, the enamel plant has other options such as use of higher solids enamels and incineration which would be available to all such plants.

Control options that are affordable are available to all existing plants to reduce emissions to pre-modification levels or to meet the levels of the promulgated standards; therefore, the development of separate standards for modifications is not justified.

Under § 60.15 if physical or operational changes were made to an existing plant and the fixed capital cost of the new components exceeded 50 percent of the fixed capital cost that would be required to construct a comparable new facility, and it is technologically and economically feasible to meet the standards, the changes would qualify as a reconstruction. During development of the standards, EPA found that the capital cost of a new coating facility is approximately $30,000,000 (average of solvent-borne enamel and lacquer systems) and that the capital cost of implementing the standards is approximately $750,000 for that facility. In the extreme situation under reconstruction where the cost of a reconstructed facility would be $15,000,000, or 50 percent of the cost of a new facility, the cost of implementing the standards would still be $750,000 or 0.5 percent of the capital cost of the facility. The Administrator believes that this cost is not unreasonable and that relief is provided for a source in unusual financial stiuations through § 60.15 which requires that it be economically feasible for a reconstructed source to meet the applicable standards. Therefore, separate standards for reconstructed plants are not justified. The promulgated standards will apply to modified and reconstructed facilities as well as new facilities.

Legal Considerations

One commenter suggested that EPA should develop criteria to identify innovative control technologies for which "innovative waivers" may be granted.

On October 31, 1979, the White House issued a fact sheet on the President's Industrial Innovation Initiatives. Included in this fact sheet is a directive for the EPA Administrator to develop and publicize a clear implementation policy and set of criteria for the award of "innovative waivers" and to "assess the need for further regulatory authority." EPA is committed to carrying out this directive, and therefore the Administrator has requested that the Office of Enforcement initiate an implementation policy regarding the award of innovative technology waivers.

EPA will consider, but is not committed to, the commenter's request for specific innovative control technology criteria or procedures for issuing waivers for automobile and light-duty truck surface coating operations; EPA's decision will, in part, depend upon the outcome of the development of general criteria for innovative technology waivers.

Until the innovative control technology criterial are issued, EPA will continue to handle Section 111(j) waiver requests on a case-by-case basis.

Reference Methods and Monitoring

The two reference methods, Methods 24 and 25, were proposed along with the proposed standards for automobile and light-duty truck surface coating operations. Subsequently, these methods have been promulgated separately from these standards on Oct. 3, 1980 (45 FR 65956).

A revised version of the proposed Method 24 (Candidate 2) has been promulgated as the method to determine data used in the calculation of the VOC content of coatings. Procedures have been added to Method 24 to ensure that analytical data fall within established precision limits. In addition, the laboratory procedure for determining volume fraction of solids has been eliminated. Method 24 now requires volume fraction of solids be calculated from the coatings manufacturers' formulation data.

Changes to Method 25 include the new requirement of a performance test prior to use of analytical equipment. In addition, routine daily calibrations have been modified to be less time-consuming. Finally, minimum performance specifications for components of analytical equipment have been specified.

The detailed comments and responses regarding Methods 24 and 25 are presented in "Reference Methods 24 and 25—Background Information for Promulgated Test Methods" (EPA–450/3–79–030c).

In addition, one commenter recommended that Method 2 should not be specifically required and that a manifold system should be permitted for mixing and collecting a combined sample for multiple stacks in lieu of sampling each stack separately.

Method 2 requires that the volumetric flow rate be measured at the traverse points specified by Method 1. For new sources, provisions can be made during the design stage to allow for the proper location of the sampling ports which would be required. For reconstructed or modified sources where the standards may be applicable, the owner or operator can install stack extensions or use an increased number of traverse points as specified in Method 1. Therefore, the requirement to use Method 2 to measure the volumetric flow rate is reasonable and will not be changed.

In principle, a manifold system is acceptable. However, since many details are involved in designing an acceptable manifold system, approval of such a sampling technique will be made if the owner or operator can show to the Administrator's satisfaction that the use of a manifold system yields results comparable to those obtained by testing all stacks.

Several commenters stated opposition to the requirement dealing with the

monitoring of incinerators which are used to control VOC emissions. These commenters stated that the required accuracy of the temperature monitoring device (±2°C or ±3.5°F) was too restrictive.

Data solicited by EPA from incinerator and temperature monitor vendors confirm that at the high temperatures 760–820°C (1400–1500°F) at which these incinerators operate, the required accuracy was too restrictive. As a result, it has been changed to the greater of ±0.75 percent of the temperature being measured expressed in degrees Celsius or ±2.5°C (±4°F).

Reports Impact Analysis

A reports impact analysis for the automobile and light-duty truck surface coating operations standards was prepared in implementation of Executive Order 12044 (44 FR 30988, May 29, 1979). The purpose of the analysis is to estimate the economic impact of the reporting and recordkeeping requirements that would be imposed by the promulgated standards and by those appearing in the General Provisions of 430 CFR Part 60. The standards would require the preparation of three types of reports. First, the General Provisions (Subpart A of 40 CFR 60) would require notification reports which inform the Agency of facilities subject to new source performance standards (NSPS). These reports include notification of construction, anticipated start-up, actual start-up, and physical or operational changes. Second, reports of the results of the performance test performed each calendar month would be required for those months when the affected facility is not in compliance with the standards. Third, quarterly reports from the owner or operator of a facility using incineration devices to comply with the standard would be required for periods when incinerator temperature falls below that measured during the incinerator's most recent performance test. These reports will show whether these devices are being properly operated and maintained.

The respondent group to the reporting requirements of the standards would be the automobile and light-duty truck manufacturing industry. It is estimated that through the fifth year of standards applicability, approximately four new, modified, or reconstructed assembly plants will have been established which would have to comply with the reporting requirements of the standards. To implement the reporting requirements of the standards through the first five years of applicability the automobile and light-duty truck manufacturing industry would incur a manpower demand of about six man-years.

A copy of the Reports Impact Analysis is included in subcategory IV–J of the automobile and light-duty truck surface coating operations docket A–79–05.

Docket

The docket is an organized and complete file of all the information submitted to or otherwise considered by EPA in the development of this rulemaking. The docketing system is intended to allow members of the public and industries involved to readily identify and locate documents so that they can intelligently and effectively participate in the rulemaking process. Along with the statement of basis and purpose of the promulgated rule and EPA responses to comments, the contents of the docket will serve as the record in case of judicial review. [Section 307 (d)(a)].

Miscellaneous

As prescribed by Section 111, establishment of standards of performance for automobile and light-duty truck surface coating operations was preceded by the Administrator's determination (40 CFR 60.16, 44 FR 49222, dated August 21, 1979) that these sources contribute significantly to air pollution which may reasonably be anticipated to endanger public health or welfare. In accordance with Section 117 of the Act, publication of these standards was preceded by consultation with appropriate advisory committees, independent experts, and Federal departments and agencies. Comments were requested specifically on Method 24 (Candidate 1 and Candidate 2) and on the coating material used as the basis for the prime coat emission limit.

It should be noted that standards of performance for new sources established under Section 111 of the Clean Air Act reflect:

> * * * application of the best technological system of continuous emission reduction which (taking into consideration the cost of achieving such emission reduction, and any nonair quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated [Section 111(a)(1)].

Although emission control technology may be available that can reduce emission below those levels required to comply with standards of performance, this technology might not be selected as the basis of standards of performance because of costs associated with its use. Accordingly, standards of performance should not be viewed as the ultimate in achievable emission control. In fact, the Act, may require the imposition of a more stringent emission standard in several situations.

For example, applicable costs do not necessarily play as prominent a role in determining the "lowest achievable emission rate" (LAER) for new or modified sources locating in nonattainment areas (i.e., those areas where statutorily mandated health and welfare standards are being violated). In this respect, Section 173 of the Act requires that new or modified sources constructed in an area which exceeds the NAAQS must reduce emissions to the level which reflects the LAER, as defined in Section 171(3). The statute defines LAER as the rate of emissions based on the following, whichever is more stringent:

> (A) the most stringent emission limitation which is contained in the implementation plan of any State for such class or category of source, unless the owner or operator of the proposed source demonstrates that such limitations are not achievable, or
>
> (B) the most stringent emission limitation which is achieved in practice by such class or category of source.

In no event can the emission rate exceed any applicable new source performance standard.

A similar situation may arise under the prevention of significant deterioration of air quality provisions of the Act. These provisions require that certain sources employ BACT as defined in Section 169(3) for all pollutants regulated under the Act. BACT must be determined on a case-by-case basis, taking energy, environmental, and economic impacts and other costs into account. In no event may the application of BACT result in emissions of any pollutants which will exceed the emissions allowed by any applicable standard established pursuant to Section 111 (or 112) of the Act.

In all cases, SIPs approved or promulgated under Section 110 of the Act must provide for the attainment and maintenance of NAAQS designed to protect public health and welfare. For this purpose, SIPs must, in some cases, require greater emission reduction than those required by standards of performance for new sources.

Finally, States are free under Section 116 of the Act to establish even more stringent emission limits than those established under Section 111 or those necessary to attain or maintain the NAAQS under Section 110. Accordingly, new sources may in some cases be subject to limitations more stringent than standards of performance under Section 111, and prospective owners and operators of new sources should be

aware of this possibility in planning for such facilities.

This regulation will be reviewed four years from the date of promulgation as required by the Clean Air Act. This review will include an assessment of such factors as the need for integration with other programs, the existence of alternative methods, enforceability, improvements in emission control technology, and reporting requirements. The reporting requirements in this regulation will be reviewed as required under EPA's sunset policy for reporting requirements in regulations.

Section 317 of the Clean Air Act requires the Administrator to prepare an economic impact assessment for any new source standard of performance under Section 111(b) of the Act. An economic impact assessment was prepared for the proposed standards and for other regulatory alternatives. All aspects of the assessment were considered in the formulation of the standards to ensure that the promulgated standards would represent the best system of emission reduction considering costs. The economic impact assessment is included in the BID for the proposed standards.

Dated: December 17, 1980.

Douglas M. Costle,

Administrator

40 CFR Part 60 is amended as follows:

1. By adding a definition of the term "volatile organic compound" to § 60.2 of Subpart A—General Provisions as follows:

§ 60.2 Definitions

"Volatile Organic Compound" means any organic compound which participates in atmospheric photochemical reactions; or which is measured by a reference method, an equivalent method, an alternative method, or which is determined by procedures specified under any subpart.

2. By adding Subpart MM as follows:

Subpart MM—Standards of Performance for Automobile and Light-Duty Truck Surface Coating Operations

Sec.

60.390 Applicability and designation of affected facility.
60.391 Definitions.
60.392 Standards for volatile organic compounds.
60.393 Performance test and compliance provisions.
60.394 Monitoring of emissions and operations.
60.395 Reporting and recordkeeping requirements.
60.396 Reference methods and procedures.
60.397 Modifications.

Authority.—Sections 111 and 301(a) of the Clean Air Act, as amended (42 U.S.C. 7411, 7601(a)), and additional authority as noted below.

Subpart MM—Standards of Performance for Automobile and Light Duty Truck Surface Coating Operations

§ 60.390 Applicability and designation of affected facility.

(a) The provisions of this subpart apply to the following affected facilities in an automobile or light-duty truck assembly plant: each prime coat operation, each guide coat operation, and each topcoat operation.

(b) Exempted from the provisions of this subpart are operations used to coat plastic body components or all-plastic automobile or light-duty truck bodies on separate coating lines. The attachment of plastic body parts to a metal body before the body is coated does not cause the metal body coating operation to be exempted.

(c) The provisions of this subpart apply to any affected facility identified in paragraph (a) of this section that begins construction, reconstruction, or modification after October 5, 1979.

§ 60.391 Definitions.

(a) All terms used in this subpart that are not defined below have the meaning given to them in the Act and in Subpart A of this part.

"Applied coating solids" means the volume of dried or cured coating solids which is deposited and remains on the surface of the automobile or light-duty truck body.

"Automobile" means a motor vehicle capable of carrying no more than 12 passengers.

"Automobile and light-duty truck body" means the exterior surface of an automobile or light-duty truck including hoods, fenders, cargo boxes, doors, and grill opening panels.

"Bake oven" means a device that uses heat to dry or cure coatings.

"Electrodeposition (EDP)" means a method of applying a prime coat by which the automobile or light-duty truck body is submerged in a tank filled with coating material and an electrical field is used to effect the deposition of the coating material on the body.

"Electrostatic spray application" means a spray application method that uses an electrical potential to increase the transfer efficiency of the coating solids. Electrostatic spray application can be used for prime coat, guide coat, or topcoat operations.

"Flash-off area" means the structure on automobile and light-duty truck assembly lines between the coating application system (dip tank or spray booth) and the bake oven.

"Guide coat operation" means the guide coat spray booth, flash-off area and bake oven(s) which are used to apply and dry or cure a surface coating between the prime coat and topcoat operation on the components of automobile and light-duty truck bodies.

"Light-duty truck" means any motor vehicle rated at 3,850 kilograms gross vehicle weight or less, designed mainly to transport property.

"Plastic body" means an automobile or light-duty truck body constructed of synthetic organic material.

"Plastic body component" means any component of an automobile or light-duty truck exterior surface constructed of synthetic organic material.

"Prime coat operation" means the prime coat spray booth or dip tank, flash-off area, and bake oven(s) which are used to apply and dry or cure the initial coating on components of automobile or light-duty truck bodies.

"Purge" or "line purge" means the coating material expelled from the spray system when clearing it.

"Solvent-borne" means a coating which contains five percent or less water by weight in its volatile fraction.

"Spray application" means a method of applying coatings by atomizing the coating material and directing the atomized material toward the part to be coated. Spray applications can be used for prime coat, guide coat, and topcoat operations.

"Spray booth" means a structure housing automatic or manual spray application equipment where prime coat, guide coat, or topcoat is applied to components of automobile or light-duty truck bodies.

"Surface coating operation" means any prime coat, guide coat, or topcoat operation on an automobile or light-duty truck surface coating line.

"Topcoat operation" means the topcoat spray booth, flash-off area, and bake oven(s) which are used to apply and dry or cure the final coating(s) on components of automobile and light-duty truck bodies.

"Transfer efficiency" means the ratio of the amount of coating solids transferred onto the surface of a part or product to the total amount of coating solids used.

"VOC content" means all volatile organic compounds that are in a coating expressed as kilograms of VOC per liter of coating solids.

"Waterborne" or "water reducible" means a coating which contains more than five weight percent water in its volatile fraction.

(b) The nomenclature used in this subpart has the following meanings:

C_{aj} = concentration of VOC (as carbon) in the effluent gas flowing through stack (j) leaving the control device (parts per million by volume),

C_{bi} = concentration of VOC (as carbon) in the effluent gas flowing through stack (i) entering the control device (parts per million by volume),

C_{fk} = concentration of VOC (as carbon) in the effluent gas flowing through exhaust stack (k) not entering the control device (parts per million by volume),

D_{ci} = density of each coating (i) as received (kilograms per liter),

D_{dj} = density of each type VOC dilution solvent (j) added to the coatings, as received (kilograms per liter),

D_r = density of VOC recovered from an affected facility (kilograms per liter),

E = VOC destruction efficiency of the control device,

F = fraction of total VOC which is emitted by an affected facility that enters the control device,

G = volume weighted average mass of VOC per volume of applied solids (kilograms per liter),

L_{ci} = volume of each coating (i) consumed, as received (liters),

L_{ci}' = volume of each coating (i) consumed by each application method (l), as received liters),

L_{dj} = volume of each type VOC dilution solvent (j) added to the coatings, as received (liters),

L_r = volume of VOC recovered from an affected facility (liters),

L_s = volume of solids in coatings consumed (liters),

M_d = total mass of VOC in dilution solvent (kilograms),

M_o = total mass of VOC in coatings as received (kilograms),

M_r = total mass of VOC recovered from an affected facility (kilograms),

N = volume weighted average mass of VOC per volume of applied coating solids after the control device

$$\left(\frac{\text{kilograms of VOC}}{\text{liter of applied solids}}\right),$$

Q_{aj} = volumetric flow rate of the effluent gas flowing through stack (j) leaving the control device (dry standard cubic meters per hour),

Q_{bi} = volumetric flow rate of the effluent gas flowing through stack (i) entering the control device (dry standard cubic meters per hour),

Q_{fk} = volumetric flow rate of the effluent gas flowing through exhaust stack (k) not entering the control device (dry standard cubic meters per hour),

T = overall transfer efficiency,

T_l = transfer efficiency for application method (*l*),

V_{si} = proportion of solids by volume in each coating (i) as received

$$\left(\frac{\text{liter solids}}{\text{liter coating}}\right), \text{ and}$$

W_{oi} = proportion of VOC by weight in each coating (i), as received

$$\left(\frac{\text{kilograms VOC}}{\text{kilograms coating}}\right).$$

§ 60.392 Standards for volatile organic compounds

On and after the date on which the initial performance test required by § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall discharge or cause the discharge into the atmosphere from any affected facility VOC emissions in excess of:

(a) 0.16 kilograms of VOC per liter of applied coating solids from each prime coat operation.

(b) 1.40 kilograms of VOC per liter of applied coating solids from each guide coat operation.

(c) 1.47 kilograms of VOC per liter of applied coating solids from each topcoat operation.

§ 60.393 Performance test and compliance provisions.

(a) Sections 60.8 (d) and (f) do not apply to the performance test procedures required by this section.

(b) The owner or operator of an affected facility shall conduct an initial performance test in accordance with § 60.8(a) and thereafter for each calendar month for each affected facility according to the procedures in this section.

(c) The owner or operator shall use the following procedures for determining the monthly volume weighted average mass of VOC emitted per volume of applied coating solids.

(1) The owner or operator shall use the following procedures for each affected facility which does not use a capture system and a control device to comply with the applicable emission limit specified under § 60.392.

(i) Calculate the volume weighted average mass of VOC per volume of applied coating solids for each calendar month for each affected facility. The owner or operator shall determine the composition of the coatings by formulation data supplied by the manufacturer of the coating or from data determined by an analysis of each coating, as received, by Reference Method 24. The Administrator may require the owner or operator who uses formulation data supplied by the manufacturer of the coating to determine data used in the calculation of the VOC content of coatings by Reference Method 24 or an equivalent or alternative method. The owner or operator shall determine from company records on a monthly basis the volume of coating consumed, as received, and the mass of solvent used for thinning purposes. The volume weighted average of the total mass of VOC per volume of coating solids used each calendar month will be determined by the following procedures.

(A) Calculate the mass of VOC used in each calendar month for each affected facility by the following equation where "n" is the total number of coatings used and "m" is the total number of VOC solvents used:

$$M_o + M_d = \sum_{i=1}^{n} L_{ci} \; D_{ci} \; W_{oi} + \sum_{j=1}^{m} L_{dj} \; D_{dj}$$

[$\Sigma L_{dj} D_{dj}$ will be zero if no VOC solvent is added to the coatings, as received].

(b) Calculate the total volume of coating solids used in each calendar month for each affected facility by the following equation where "n" is the total number of coatings used:

$$L_s = \sum_{i=1}^{n} L_{ci} \; V_{si}$$

(c) Select the appropriate transfer efficiency (T) from the following tables for each surface coating operation:

Application Method	Transfer efficiency
Air Atomized Spray (waterborne coating)	0.39
Air Atomized Spray (solvent-borne coating)	0.50
Manual Electrostatic Spray	0.75
Automatic Electrostatic Spray	0.95
Electrodeposition	1.00

The values in the table above represent an overall system efficiency which includes a total capture of purge. If a spray system uses line purging after each vehicle and does not collect any of the purge material, the following table shall be used:

Application Method	Transfer efficiency
Air Atomized Spray (waterborne coating)	0.30
Air Atomized Spray (solvent-borne coating)	0.40
Manual Electrostatic Spray	0.62
Automatic Electrostatic Spray	0.75

If the owner or operator can justify to the Administrator's satisfaction that other values for transfer efficiencies are appropriate, the Administrator will approve their use on a case-by-case basis.

(*1*) When more than one application method (*l*) is used on an individual surface coating operation, the owner or operator shall perform an analysis to determine an average transfer efficiency by the following equation where "n" is the total number of coatings used and "p" is the total number of application methods:

$$T = \frac{\sum_{i=1}^{n} \sum_{\ell=1}^{p} T_{\ell} V_{si} L_{ci\ell}}{L_s}$$

(D) Calculate the volume weighted average mass of VOC per volume of applied coating solids (G) during each calendar month for each affected facility by the following equation:

$$G = \frac{M_o + M_d}{L_s T}$$

(ii) If the volume weighted average mass of VOC per volume of applied coating solids (G), calculated on a calendar month basis, is less than or equal to the applicable emission limit specified in § 60.392, the affected facility is in compliance. Each monthly calculation is a performance test for the purpose of this subpart.

(2) The owner or operator shall use the following procedures for each affected facility which uses a capture system and a control device that destroys VOC (e.g., incinerator) to comply with the applicable emission limit specified under § 60.392.

(i) Calculate the volume weighted average mass of VOC per volume of applied coating solids (G) during each calendar month for each affected facility as described under § 60.393(c)(1)(i).

(ii) Calculate the volume weighted average mass of VOC per volume of applied solids emitted after the control device, by the following equation: $N=G[1-FE]$

(A) Determine the fraction of total VOC which is emitted by an affected facility that enters the control device by using the following equation where "n" is the total number of stacks entering the control device and "p" is the total number of stacks not connected to the control device:

$$F = \frac{\sum_{i=1}^{n} Q_{bi} C_{bi}}{\sum_{1=1}^{n} Q_{bi} C_{bi} + \sum_{k=1}^{p} Q_{fk} C_{fk}}$$

If the owner can justify to the Administrator's satisfaction that another method will give comparable results, the Administrator will approve its use on a case-by-case basis.

(*1*) In subsequent months, the owner or operator shall use the most recently determined capture fraction for the performance test.

(B) Determines the destruction efficiency of the control device using values of the volumetric flow rate of the gas streams and the VOC content (as carbon) of each of the gas streams in and out of the device by the following equation where "n" is the total number of stacks entering the control device and "m" is the total number of stacks leaving the control device:

$$E = \frac{\sum_{i=1}^{n} Q_{bi} C_{bi} - \sum_{j=1}^{m} Q_{aj} C_{aj}}{\sum_{i=1}^{n} Q_{bi} C_{bi}}$$

(*1*) In subsequent months, the owner or operator shall use the most recently determined VOC destruction efficiency for the performance test.

(C) If an emission control device controls the emissions from more than one affected facility, the owner or operator shall measure the VOC concentration (C_{bi}) in the effluent gas entering the control device (in parts per million by volume) and the volumetric flow rate (Q_{bi}) of the effluent gas (in dry standard cubic meters per hour) entering the device through each stack. The destruction or removal efficiency determined using these data shall be applied to each affected facility served by the control device.

(iii) If the volume weighted average mass of VOC per volume of applied solids emitted after the control device (N) calculated on a calendar month basis is less than or equal to the applicable emission limit specified in § 60.392, the affected facility is in compliance. Each monthly calculation is a performance test for the purposes of this subpart.

(3) The owner or operator shall use the following procedures for each affected facility which uses a capture system and a control device that recovers the VOC (e.g., carbon adsorber) to comply with the applicable emission limit specified under § 60.392.

(i) Calculate the mass of VOC (M_o+M_d) used during each calendar month for each affected facility as described under § 60.393(c)(1)(i).

(ii) Calculate the total volume of coating solids (L_s) used in each calendar month for each affected facility as described under § 60.393(c)(1)(i).

(iii) Calculate the mass of VOC recovered (M_r) each calendar month for each affected facility by the following equation: $M_r = L_r D_r$

(iv) Calculate the volume weighted average mass of VOC per volume of applied coating solids emitted after the control device during a calendar month by the following equation:

$$N = \frac{M_o + M_d - M_r}{L_s}$$

(v) If the volume weighted average mass of VOC per volume of applied solids emitted after the control device (N) calculated on a calendar month basis is less than or equal to the applicable emission limit specified in § 60.392, the affected facility is in compliance. Each monthly calculation is a performance test for the purposes of this subpart.

§ 60.394 Monitoring of emissions and operations.

The owner or operator of an affected facility which uses an incinerator to comply with the emission limits specified under § 60.392 shall install, calibrate, maintain, and operate temperature measurement devices as prescribed below:

(a) Where thermal incineration is used, a temperature measurement device shall be installed in the firebox. Where catalytic incineration is used, a temperature measurement device shall be installed in the gas stream immediately before and after the catalyst bed.

(b) Each temperature measurement device shall be installed, calibrated, and maintained according to accepted practice and the manufacturer's specifications. The device shall have an accuracy of the greater of ±0.75 percent of the temperature being measured expressed in degrees Celsius or ±2.5° C.

(c) Each temperature measurement device shall be equipped with a recording device so that a permanent record is produced.

(Section 114 of the Clean Air Act as amended (42 U.S.C. 74140))

§ 60.395 Reporting and recordkeeping requirements.

(a) Each owner or operator of an affected facility shall include the data outlined in subparagraphs (1) and (2) in the initial compliance report required by § 60.8.

(1) The owner or operator shall report the volume weighted average mass of VOC per volume of applied coating solids for each affected facility.

(2) Where compliance is achieved through the use of incineration, the owner or operator shall include the following additional data in the control device initial performance test requried by § 60.8(a) or subsequent performance tests at which destruction efficiency is determined: the combustion temperature (or the gas temperature upstream and downstream of the catalyst bed), the total mass of VOC per volume of applied coating solids before and after the incinerator, capture efficiency, the destruction efficiency of the incinerator used to attain compliance with the applicable emission limit specified in § 60.392 and a description of the method used to establish the fraction of VOC captured and sent to the control device.

(b) Following the initial report, each owner or operator shall report the volume weighted average mass of VOC per volume of applied coating solids for each affected facility during each calendar month in which the affected facility is not in compliance with the applicable emission limit specified in § 60.392. This report shall be postmarked not later than ten days after the end of the calendar month that the affected facility is not in compliance. Where compliance is achieved through the use of a capture system and control device, the volume weighted average after the control device should be reported.

(c) Where compliance with § 60.392 is achieved through the use of incineration, the owner or operator shall continuously record the incinerator combustion temperature during coating operations for thermal incineration or the gas temperature upstream and downstream of the incinerator catalyst bed during coating operations for catalytic incineration. The owner or operator shall report quarterly as defined below.

(1) For thermal incinerators, every three-hour period shall be reported during which the average temperature measured is more than 28°C less than the average temperature during the most recent control device performance test at which the destruction efficiency was determined as specified under § 60.393.

(2) For catalytic incinerators, every three-hour period shall be reported during which the average temperature immediately before the catalyst bed, when the coating system is operational, is more than 28° C less than the average temperature immediately before the catalyst bed during the most recent control device performance test at which destruction efficiency was determined as specified under § 60.393. In addition, every three-hour period shall be reported each quarter during which the average temperature difference across the catalyst bed when the coating system is operational is less than 80 percent of the average temperature difference of the device during the most recent control device performance test at which destruction efficiency was determined as specified under § 60.393.

(3) For thermal and catalytic incinerators, if no such periods occur, the owner or operator shall submit a negative report.

(d) The owner or operator shall notify the Administrator 30 days in advance of any test by Reference Method 25.

(Section 114 of the Clean Air Act as amended (42 U.S.C. 7414))

§ 60.396 Reference methods and procedures.

(a) The reference methods in Appendix A to this part, except as provided in § 60.8 shall be used to conduct performance tests.

(1) Reference Method 24 or an equivalent or alternative method approved by the Administrator shall be used for the determination of the data used in the calculation of the VOC content of the coatings used for each affected facility. Manufacturers' formulation data is approved by the Administrator as an alternative method to Method 24. In the event of dispute, Reference Method 24 shall be the referee method.

(2) Reference Method 25 or an equivalent or alternative method approved by the Administrator shall be used for the determination of the VOC concentration in the effluent gas entering and leaving the emission control device for each stack equipped with an emission control device and in the effluent gas leaving each stack not equipped with a control device.

(3) The following methods shall be used to determine the volumetric flow rate in the effluent gas in a stack:

(i) Method 1 for sample and velocity traverses,

(ii) Method 2 for velocity and volumetric flow rate,

(iii) Method 3 for gas analysis, and

(iv) Method 4 for stack gas moisture.

(b) For Reference Method 24, the coating sample must be a 1-liter sample taken in a 1-liter container.

(c) For Reference Method 25, the sampling time for each of three runs must be at least one hour. The minimum sample volume must be 0.003 dscm except that shorter sampling times or smaller volumes, when necessitated by process variables or other factors, may be approved by the Administrator. The Administrator will approve the sampling of representative stacks on a case-by-case basis if the owner or operator can demonstrate to the satisfaction of the Administrator that the testing of representative stacks would yield results comparable to those that would be obtained by testing all stacks.

(Sec. 114 of the Clean Air Act as amended (42 U.S.C. 7414))

§ 60.397 Modifications.

The following physical or operational changes are not, by themselves, considered modifications of existing facilities:

(1) Changes as a result of model year changeovers or switches to larger cars.

(2) Changes in the application of the coatings to increase coating film thickness.

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